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ECONOMIC AND PRODUCTION IMPLICATIONS OF AN
ASSUMED SOVIET GUIDED MISSILE PROGRAM
1954 to 1963

(OER CONTRIBUTION BASED ON THE COORDINATED
INTELLIGENCE ASSUMPTIONS FOR THE
SPECIAL NESC PROJECT, 1959)

CIA/RR IP-59-16

(OER Project No. 37.2482)

21 May 1959

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FOREWORD

The set of tables in this contribution provide representative costs and production schedules consistent with an assumed Soviet guided missile program based on the Coordinated Intelligence Assumptions for the NESC Project, 1959.

The methodology used and the limitations prescribed in CIA/RR IP-634 dated 8 September 1958 remain unchanged in the preparation of this contribution.

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TABLE I

Number of Guided Missiles In Operational Stockpile, by Year, 1954-1963
(Numbers of Missiles, Cumulative at End of Year)

NIE 11-5-58 Designation	Mid-1963 Stockpile	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
<u>Surface-to-Surface Ballistic</u>											
SS-1* (100 n.m.)	3,000	100	200	450	350	1,250	2,000	2,750	3,000	3,000	3,000
SS-2* (200 n.m.)	1,500	40	150	300	450	600	1,050	1,500	1,500	1,500	1,500
SS-3* (300 n.m.)	750	30	100	150	200	250	450	650	750	750	750
SS-4 (700 n.m.)	400			10	80	190	300	400	400	400	400
SS-5 (1,100 n.m.)	500					10	80	200	320	440	560
SS-6 (ICBM)	750						20	125	375	625	875
<u>Surface-to-Surface Naval</u>											
SS-7 (200 n.m. Submarine)	250			4	8	20	64	155	250	250	250
SS-8 (1,000 n.m. Submarine)	150									20	360
<u>Air-to-Surface</u>											
AS-1* (55 n.m.)	450				112	337	450	450	450	450	450
AS-2* (250 n.m.)	700								175	525	875
<u>Air-to-Air</u>											
AA-1*	0			1,000	2,900	3,800	3,800	3,600	1,600		
AA-2	12,000			1,000	2,900	4,800	6,700	8,600	10,500	12,000	12,000
AA-3	14,000					2,900	13,100	23,500	23,500	17,600	10,400
AA-4	4,200							1,400	4,200	4,200	4,200

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TABLE I
(Continued)

Number of Guided Missiles in Operational Stockpile, by Year, 1954-1963
(Numbers of Missiles, Cumulative at End of Year)

<u>NIE 11-5-58 Designation</u>	<u>Mid-1963 Stockpile</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
<u>Surface-to-Air (Ground-Launched)</u>											
SA-1 (Moscow Sites)	-0-	2,640	7,900	13,400	12,900	8,600	2,600				
SA-2	17,500				527	4,618	9,899	15,173	20,459	21,750	13,750
SA-3*	22,500							3,700	11,200	18,250	26,250
SA-4*	27,000								6,800	20,400	34,000
<u>Surface-to-Air (Naval-Launched)</u>											
SA-6 (Naval)	1,300						150	450	350	1,150	1,450
SA-7 (Naval)	700								100	400	1,000

* As appearing in 1970 assumptions - repeated here as basis for costing.

TABLE II
Number of Operational Units Deployed and Equipped
with Missiles, by Year, 1954-1963
(Number of Units, Cumulative at End of Year)

NIE 11-5-58 Designation	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
<u>Surface-to-Surface Ballistic</u>										
SS-1 (100 n.m.)	1	4	9	17	25	40	55	60	60	60
SS-2 (200 n.m.)	1	3	6	9	12	21	30	30	30	30
SS-3 (300 n.m.)	1	2	3	4	5	9	13	15	15	15
SS-4 (700 n.m.)			2	11	21	32	40	40	40	40
SS-5 (1,100 n.m.)					2	9	20	32	44	56
SS-6 (ICBM)						3	12	37	62	87
<u>Surface-to-Surface Naval</u>										
SS-7 (200 n.m. Submarine)			1	2	4	10	23	36	36	36
SS-8 (1,000 n.m. Submarine)						1	4	7	10	13
<u>Air-to-Surface</u>										
AS-1 (55 n.m.)				22	67	90	90	90	90	90
AS-2 (250 n.m.)								35	105	175
<u>Air-to-Air</u>										
AA-1			120	360	480	480	450	200		
AA-2			120	360	600	840	1,080	1,320	1,520	1,520

TABLE II
(Continued)

Number of Operational Units Deployed and Equipped
with Missiles, by Year, 1954-1963
(Number of Units, Cumulative at End of Year)

<u>NIE 11-5-58</u> <u>Designation</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
AA-3					360	1,640	2,940	2,940	2,200	1,300
AA-4							200	600	600	600
<u>Surface-to-Air (Ground-Launched)</u>										
SA-1	11	33	56	54	36	11				
SA-2				4	35	75	115	155	165	104
SA-3							25	75	125	175
SA-4								50	150	250
<u>Surface-to-Air (Naval-Launched)</u>										
SA-6										
Destroyers						1	7	13	19	25
Cruisers						1	1	2	2	2
SA-7										
Cruisers								1	4	10

TABLE III
Summary of Offensive Missile Production* and Units
Deployed by Missile and Year, 1954-1963

NIE 11-5-58 Designation		Monthly Missile Production at Peak Rate	Number of Months at Peak Rate	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	Totals
SS-1 (100 n.m.)	Missiles Produced Units Deployed	60	30	112 1	288 3	400 5	500 8	500 8	700** 15	700 15	400 5			3600 60
SS-2 (200 n.m.)	Missiles Produced Units Deployed	42	24	50 1	150 2	200 3	200 3	200 3	500** 9	500 9				1800 30
SS-3 (350 n.m.)	Missiles Produced Units Deployed	19	30	32 1	68 1	75 1	75 1	75 1	225** 4	225 4	125 2			900 15
SS-4 (700 n.m.)	Missiles Produced Units Deployed	11	39			24 2	105 9	132 10	132** 11	110 8				500 40
SS-5 (1,100 n.m.)	Missiles Produced Units Deployed	12	51					24 2	109** 7	144 11	144 12	144 12	144 12	710 56
SS-6 (ICBM)	Missiles Produced Units Deployed	25	36						40 3	140 9	300 25	300** 25	300 25	1030 87
SS-7 (200 n.m. Sub.)	Missiles Produced Converted Submarines New Conventional Submarines	10	24			5 1	5 1	16 1	48 3	116 4	116 4			310 14
								1	3	9	9			22

TOP SECRET

TABLE III
(Continued)Summary of Offensive Missile Production* and Units
Deployed by Missile and Year, 1954-1963

NIE 11-5-58 Designation		Monthly Missile Production at Peak Rate	Number of Months at Peak Rate	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	Totals
SS-3 (1,000 n.m. Sub.)	Missiles Produced	40	7						1	3	3	50	430	430
	Submarines Deployed											3	3	13
AS-1 (55 n.m.)	Missiles Produced	25	18				150	300	150					600
	Aircraft Deployed						22	45	23					90
AS-2 (250 n.m.)	Missiles Produced	44	24								262	525	525	1312
	Aircraft Deployed										35	70	70	175

* Production figures in this table represent total production which, in addition to operational deliveries (shown in Table I), allows for missiles allocated for static and laboratory tests, production slippage, other degradation of all types and missiles expended for training purposes.

** Change from radar/radio command to all inertial system.

TOP SECRET

TABLE IV
Summary of Defensive Missile Production and Units
Deployed by Missile and Year, 1954-1963

NIE 11-5-58 Designation		Monthly Missile Production at Peak Rate	Number of Months at Peak Rate	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	Totals
AA-1	Missiles Produced	280	18			1,680	3,360	1,680						6,720
	Aircraft Deployed					120	240	120						480
AA-2	Missiles Produced	280	72			1,680	3,360	3,360	3,360	3,360	3,360	2,810		21,290
	Aircraft Deployed					120	240	240	240	240	240	200		1,520
AA-3	Missiles Produced	1,150	24					3,700	13,500	13,800				31,000
	Aircraft Deployed							360	1,280	1,300				2,940
AA-4	Missiles Produced	420	12							2,500	5,000			7,500
	Aircraft Deployed									200	400			600
SA-1	Missiles Produced	580	24	3,470	6,940	6,940								17,360
	Units Deployed (Moscow)			11	22	23								56
SA-2	Missiles Produced	560	42				675	5,237	6,759	6,759	6,759	1,690		27,879
	Units Deployed						4	31	40	40	40	10		165
SA-3	Missiles Produced	800	36							4,800	9,600	9,600	9,600	33,600
	Units Deployed									25	50	50	50	175

TOP SECRET

TABLE IV
(Continued)Summary of Defensive Missile Production and Units
Deployed by Missile and Year, 1954-1963

NIE 11-5-58 Designation		Monthly Missile Production at Peak Rate	Number of Months at Peak Rate	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	Totals
SA-4	Missiles Produced	1,450	24								8,700	17,400	17,400	43,500
	Units Deployed										50	100	100	250
SA-6 (Naval)	Missiles Produced	30	54						300					
	Destroyers Deployed								1	360	360	360	360	1,740
	Cruisers Deployed								1	6	6	6	6	25
SA-7 (Naval)	Missiles Produced	60	12											
	Cruisers Deployed										120	360	720	1,200
											1	3	6	10

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TABLE V

Comparison of Total Cost of NESC Project 1959 Program and Projected
Soviet Military Expenditure by Year, 1954-1963
(Billions of 1957 Dollars)

	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
USSR Military Expenditures	41.5	43.2	43.1	40.3	41.0	44.4	47.9	51.6	54.8	55.8
NESC 1959 Program	0.4	0.8	1.1	1.4	2.5	5.0	8.1	10.3	12.2	14.3
NESC 1959 Program as percent of Military Expenditures	1.0	1.9	2.6	3.5	6.1	11.3	16.9	20.0	22.3	25.6

TABLE VI

Total Costs of NESC Project 1959 Program
by Category of Missiles
(Billions of 1957 Dollars)

	<u>Initial Investment</u>	<u>Operating Costs</u>	<u>Total</u>	<u>Percent of Total</u>
Surface-to-Air Ground-Launched	13.0	5.4	18.4	32.7
Surface-to-Air Ship-Launched	1.8	0.4	2.2	3.9
Air-to-Air	1.7	1.9	3.6	6.4
Air-to-Surface	0.5	0.5	1.0	1.8
Surface-to-Surface (up to and including 700 n.m.)	4.0	5.6	9.6	17.2
Surface-to-Surface Submarine-Launched	2.5	0.3	2.8	5.0
IRBM (1,100 n.m.)	3.2	1.9	5.1	9.0
ICBM (5,500 n.m.)	10.2	3.2	13.4	24.0
TOTAL	<u>36.9</u>	<u>19.2</u>	<u>56.1</u>	<u>100.0</u>

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TABLE VII

Yearly Costs of NESC Project 1959 Program, 1954-1963
(Billions of 1957 Dollars)

	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>Total</u>
Initial Investment	.4	.7	.9	.9	1.8	3.9	6.2	7.0	7.3	7.8	36.9
Annual Operating		.1	.2	.5	.7	1.1	1.9	3.3	4.9	6.5	19.2
TOTAL	<u>.4</u>	<u>.8</u>	<u>1.1</u>	<u>1.4</u>	<u>2.5</u>	<u>5.0</u>	<u>8.1</u>	<u>10.3</u>	<u>12.2</u>	<u>14.3</u>	<u>56.1</u>

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TABLE VIII

Total Investment and Operating Costs of NESC
Project 1959 Program by Missile System

NIE 11-5-59 Designation	Investment Costs		Operating Costs		Total Costs	
	Billions 1957 Dollars	Percent of Total	Billions 1957 Dollars	Percent of Total	Billions 1957 Dollars	Percent of Total
SS-1	1.2	3.2	0.8	4.2	2.0	3.6
SS-2	0.7	1.9	0.6	3.1	1.3	2.3
SS-3	0.4	1.1	0.7	3.6	1.1	1.9
SS-4	1.7	4.6	3.5	18.2	5.2	9.3
SS-5	3.2	8.7	1.9	9.9	5.1	9.1
SS-6	10.2	27.7	3.2	16.7	13.4	23.9
SS-7	0.9	2.4	0.1	0.6	1.0	1.8
SS-8	1.6	4.3	0.2	1.0	1.8	3.2
AS-1	0.2	0.5	0.3	1.6	0.5	0.9
AS-2	0.3	0.8	0.2	1.0	0.5	0.9
AA-1	0.2	0.5	0.1	0.6	0.3	0.5
AA-2	*	--	0.2	1.0	0.2	0.4
AA-3	1.2	3.2	1.4	7.3	2.6	4.6
AA-4	0.3	0.8	0.2	1.0	0.5	0.9
SA-1	1.4	3.8	1.2	6.2	2.6	4.6
SA-2	2.2	6.0	2.2	11.4	4.4	7.8
SA-3	3.8	10.4	1.0	5.2	4.8	8.6
SA-4	5.6	15.3	1.0	5.2	6.6	11.8
SA-6	0.9	2.4	0.3	1.6	1.2	2.1
SA-7	0.9	2.4	0.1	0.6	1.0	1.8
TOTAL	36.9	100.0	19.2	100.0	56.1	100.0

* Less than 50 million dollars.

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